

### **REMARKS**

This is in full and timely response to the Office Action dated April 29, 2009.

Claims 20 and 22-42 are currently pending in this application, with claim 20 being independent.

*No new matter has been added.*

Reexamination in light of the following remarks is respectfully requested.

### **Claim rejections**

These rejections are traversed at least for the following reasons.

**Claims 20 and 22-42** - Claims 22-42 are dependent upon claim 20. Claim 20 is drawn to an electrolytic capacitor comprising a capacitor element, a case containing the capacitor element, and a sealant with which the case is sealed,

the capacitor element comprising a pair of electrode foils each comprising a dielectric, a separator for isolating the electrode foils from each other, and an electrolytic solution filled between the electrode foils, wherein the electrolytic solution comprising a solvent and a solute, wherein water accounts for from more than 80% to 100% by weight of the solvent, the solute is selected from a carboxylic acid or a salt thereof and an inorganic acid or a salt thereof, and further comprises one or more compounds selected from a nitro compound, a nitroso compound or a salt thereof, a chelete forming compound or a salt thereof, saccharides, a phosphoric acid compound or a derivative thereof, a watersoluble polymer and a silane coupling agent alone or in combination, and 'the total solute content is from 1.5 to 44% by weight, and in which the content of the carboxylic acid-based electrolytes is within a

range from 0.5 to 35% by weight, and wherein the electrolytic solution has a specific resistance at 30°C of 65  $\Omega$  cm or less, and wherein the separator of the capacitor has a space in which ions are capable of migrating between the electrode foils even under low temperature conditions, and has a density of 0.3 to 0.5 g/cm<sup>3</sup>.

**1. All claimed features are not present within the cited references**

As a rule, an analysis of obviousness must be based on several factual inquiries: (1) the scope and content of the prior art; (2) the differences between the prior art and the claims at issue; (3) the level of ordinary skill in the art at the time the invention was made; and (4) objective evidence of nonobviousness, if any. *In re Kubin*, 90 USPQ2d 1417, 1420 (Fed. Cir. 2009).

Within claim 20, *the separator of the capacitor has a space in which ions are capable of migrating between the electrode foils even under low temperature conditions, and has a density of 0.3 to 0.5 g/cm<sup>3</sup>.*

According to the present invention, as is described below Table 6, as a result of application of the selective density of 0.3 to 0.5 g/cm<sup>3</sup>, it becomes possible to secure a space in which ions can be migrated even at a lower temperature, thereby enabling to suppress a change in ESR and thus to produce an electrolytic capacitor capable of showing excellent stability at lower temperature ranging from 105 to -25°C.

However, none of the cited references teach the above features.

## 2. Evidence of nonobviousness

It is respectfully submitted that the a *prima facie* case of obviousness respecting the claimed invention is not present, and that evidence of comparative testing is unnecessary in rebuttal. *In re Clemens, Hurwitz, and Walker*, 206 USPQ 289, 296 (C.C.P.A. 1980).

But if a *prima facie* case of obviousness had been made by the cited references, precedent establishes the analytical procedure whereby a close structural similarity between a new chemical compound and prior art compounds is generally deemed to create a *prima facie* case of obviousness, shifting to the patentee the burden of coming forward with evidence of nonobviousness. *Sanofi-Synthelabo v. Apotex Inc.*, 89 USPQ2d 1370, 1377 (Fed. Cir. 2008).

One way for a patent applicant to rebut a *prima facie* case of obviousness is to make a showing of “unexpected results,” i.e., to show that the claimed invention exhibits some superior property or advantage that a person of ordinary skill in the relevant art would have found surprising or unexpected. *In re Geisler*, 43 USPQ2d 1362, 1365 (Fed. Cir. 1997).

Consistent with the rule that all evidence of nonobviousness must be considered when assessing patentability, the U.S. Patent and Trademark Office must consider comparative data in the specification in determining whether the claimed invention provides unexpected results. *In re Soni*, 34 USPQ2d 1684, 1687 (Fed. Cir. 1995). See also, *In re Wright*, 6 USPQ2d 1959, 1962 (Fed. Cir. 1988).

Here, the specification as originally filed at page 52, line 11, through page 54, line 2, provides the following:

### Comparative Example 11 and Examples 33 to 36

The same procedure as in Example 1 was repeated to obtain aluminum electrolytic capacitors, except that the electrolytic solution of Example 24 was used in common and, as described in Table 6 below, a separator having a density of 0.6 g/cm<sup>3</sup> was

used in Comparative Example 11, a separator having a density of  $0.5 \text{ g/cm}^3$  was used in Example 33, a separator having a density of  $0.4 \text{ g/cm}^3$  was used in Example 34, a separator having a density of  $0.35 \text{ g/cm}^3$  was used in Example 35 and a separator having a density of  $0.3 \text{ g/cm}^3$  was used in Example 36 so as to confirm the influence of the density ( $\text{g/cm}^3$ ) of the separator to be used on ESR of the capacitor in case of this example. The material of the separator used in this example is a natural fiber.

With respect to the aluminum electrolytic capacitors obtained in the respective examples, ESR ( $\text{m}\Omega$ , 100 kHz) was measured at different temperatures ( $-25^\circ\text{C}$ ,  $-10^\circ\text{C}$ ,  $0^\circ\text{C}$ ,  $20^\circ\text{C}$ ,  $55^\circ\text{C}$ ,  $85^\circ\text{C}$  and  $105^\circ\text{C}$ ). As a result, ESR described in Table 6 below was obtained. Fig. 4 is a graph showing a relation between the temperature and ESR with the respective aluminum electrolytic capacitors.

Table 6

Examples	Density of separator ( $\text{g/cm}^3$ )	Temperature ( $^\circ\text{C}$ )						
		105	85	55	20	0	-10	-25
Comparative Example 11	0.6	30.0	28.8	27.96	28.56	31.8	52.7	150.2
Example 33	0.5	26.3	25.2	24.5	25.0	27.8	40.3	95.2
Example 34	0.4	25.0	24.0	23.3	23.8	26.5	34.7	72.9
Example 35	0.35	23.5	22.5	21.8	22.3	24.5	29.8	55.9
Example 36	0.3	22.5	21.5	20.8	21.3	23.0	25.5	48.5

Unit of ESR:  $\text{m}\Omega$

As is apparent from the results in Fig. 4, the electrolytic capacitor of Comparative Example 11, in which the separator has a density of  $0.6 \text{ g/cm}^3$ , shows large change in ESR at  $0^\circ\text{C}$  or lower. On the other hand, the electrolytic capacitors of Examples 33 to 36 in which the separator has a density of  $0.5 \text{ g/cm}^3$  or less show small change even at a low temperature of  $0^\circ\text{C}$  or lower and are excellent in the stability at low

temperature. When a separator having a density of  $0.4 \text{ g/cm}^3$  or less is used, the resulting electrolytic capacitor shows small change even at low temperature and is excellent in the stability at low temperature. This reason is considered to be as follows. That is, migration of ions between electrode foils is restricted by a large density of the separator, namely, narrow space. When the density is  $0.5 \text{ g/cm}^3$  or less, a space in which ions are capable of migrating even at low temperature is secured and a change in ESR is suppressed. Therefore, an electrolytic capacitor capable of showing excellent stability at low temperatures ranging from  $105$  to  $-25^\circ\text{C}$  can be obtained by using a separator having a density of  $0.5 \text{ g/cm}^3$  less in combination with the electrolytic solution of the present invention.

Accordingly, it is readily apparent that the specification as originally filed provides a showing of "unexpected results," i.e., to show that the claimed invention exhibits some superior property or advantage that a person of ordinary skill in the relevant art would have found surprising or unexpected.

Withdrawal of these rejections and allowance of the claims is respectfully requested.

### **Official Notice**

There is no concession as to the veracity of Official Notice, if taken in any Office Action.

An affidavit or document should be provided in support of any Official Notice taken. 37 CFR 1.104(d)(2), MPEP § 2144.03. See also, *Ex parte Natale*, 11 USPQ2d 1222, 1227-1228 (Bd. Pat. App. & Int. 1989)(failure to provide any objective evidence to support the challenged use of Official Notice constitutes clear and reversible error).

**Extensions of time**

Please treat any concurrent or future reply, requiring a petition for an extension of time under 37 C.F.R. §1.136, as incorporating a petition for extension of time for the appropriate length of time.

The Commissioner is hereby authorized to charge all required fees, fees under 37 C.F.R. §1.17, or all required extension of time fees.

**Fees-general authorization**

The Commissioner is hereby authorized to charge any deficiency in fees filed, asserted to be filed, or which should have been filed herewith (or with any paper hereafter filed in this application by this firm).

If any fee is required or any overpayment made, the Commissioner is hereby authorized to charge the fee or credit the overpayment to Deposit Account # 18-0013.

**Conclusion**

This response is believed to be a complete response to the Office Action.

Applicants reserve the right to set forth further arguments supporting the patentability of their claims, including the separate patentability of the dependent claims not explicitly addressed herein, in future papers.

For the foregoing reasons, all the claims now pending in the present application are allowable, and the present application is in condition for allowance.

Accordingly, favorable reexamination and reconsideration of the application in light of the remarks is courteously solicited.

If the Examiner has any comments or suggestions that could place this application in even better form, the Examiner is requested to telephone Brian K. Dutton, Reg. No. 47,255, at 202-955-8753.

Dated: July 29, 2009

Respectfully submitted,

By 

Brian K. Dutton

Registration No.: 47,255

RADER, FISHMAN & GRAUER PLLC

Correspondence Customer Number: 23353

Attorney for Applicant